VACCINATION OF THE NEWBORN AGAINST TUBERCULOSIS [1]

AT THE PRESENT time attempts to produce a preventive and a curative serum for tuberculosis seem to be in abeyance, if we except such efforts as those ascribed to Spahlinger. On the other hand, there has been extreme activity in attempts at producing a vaccine against the disease. Most of these have fallen by the way, even their proponents acknowledging their inefficacy.

Among those which seem worthy of our attention is the vaccine produced by Calmette and his associates. Calmette considers it as an established fact that any vaccine against tuberculosis must be a living germ, more or less attenuated. After many trials he believes that beef bile, to which 5 per cent of glycerine has been added, is the best medium in which to cultivate his vaccine, not only to keep it going, but also to bring about the proper degree of attenuation. During 13 years he has continued his culture under identical conditions at 38° C. having in this time made 230 successive subcultures. His germ has at this time lost all power of producing tuberculosis in any of the domestic animals and to it he gives the name BCG (Bacillus Calmette-Guérin). After extensive experiments with domestic animals, including monkeys, which have clearly demonstrated the harmlessness of the inoculations as well as their efficacy in producing a high degree of immunity, he now reports on a series of children in Paris and other parts of France, many of whom were born of tuberculous mothers or reared in tuberculous families. The vaccine was administered by the mouth.

Among 5,183 newborn children, 1,317 of whom have been under observation and individual control for from 6 to 18 months, a total of 107 have died, 96 of whom succumbed to non-tuberculous disease and 9 to diseases presumably tuberculous. Calmette feels that he is justified in saying that immunization of the newborn by BCG saves at least 93 per cent of children who would otherwise die from tuberculosis during the first year of their lives.

Accepting these facts, the next question concerns the duration of immunity and the necessity of revaccination. This cannot be answered positively at the moment, but in view of the experimental work it seems that the resistance will last for more than 3 years.

Calmette feels strongly that in view of the wide distribution of tuberculosis, vaccine should be used in the newborn, since practically everyone in old countries is infected at an early age, and vaccination of young people and adults is possible only in countries in which tuberculosis is rare. Since the death rate from tuberculosis in children born of tuberculous mothers or living in infected surroundings, averages 25 per cent from birth to one year of age, while that of immunized children is below 2 per cent, he feels that we have in his vaccine, BCG, an agent of great value, which has been shown to be free from danger or disagreeable effects of any sort. There is no febrile reaction and no inconvenience.

Coming from such a source, the result of 20 years of constant study and experiments, Calmette's pronouncement deserves our attention. We must at least hope that an efficient method of vaccinating young children against tuberculosis is at last in our hands. Calmette gives explicit directions for making his culture medium and for the proper culture and preservation of his vaccine. Up to the present time he has not succeeded in preparing a vaccine which will keep longer than 10 days, so that it is impracticable to distribute it generally. It is indispensable that the vaccinal emulsion shall contain a maximum of living and a minimum of dead or degenerated bacilli.

1. *Ann. de l'Inst. Pasteur*, XL, 2 (Feb.), 1926.